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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

November 17, 1999

Ms. Magalie Roman Salas
Secretary
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, DC 20554

PCIA
Personal Communications Industry Association

**Re: Ex Parte Presentation**
**CC Docket No. 97-213**
**(Communications Assistance for Law Enforcement Act)**

Dear Ms. Salas:

On Tuesday, November 16, 1999, the Personal Communications Industry Association ("PCIA"), represented by Rob Hoggarth and Todd Lantor, along with David Odom, Odom and Associates, Rob Lockhart, Motorola, Benjamin Ngo, Glenayre, Stephen Day, Metrocall, Inc., Jeff Poe, SkyTel, and Stephan Oshinsky, SkyTel, met with David Ward of the Common Carrier Bureau, Charles Iseman and Rodney Small of the Office of Engineering and Technology, and Charlene Lagerwerff, Susan Kimmel, Stacy Jordan, and John Spencer of the Wireless Telecommunications Bureau, regarding the above-referenced proceeding.

The above industry participants, all of whom are members of the PCIA Technical Committee (PTC), provided an overview of the paging industry, updated those from the FCC on the PTC's standard-setting efforts, and reported on the status of PCIA's ongoing negotiations with law enforcement. Paging industry representatives described some of the obstacles that may have to be overcome in order for the messaging industry to fully comply with CALEA. In addition, industry participants commented on the role that the FCC could play in helping paging carriers achieve CALEA compliance. An overview of the matters discussed during yesterday's meeting is attached thereto, as well as a copy of the PTC's CALEA Suite of Standards.

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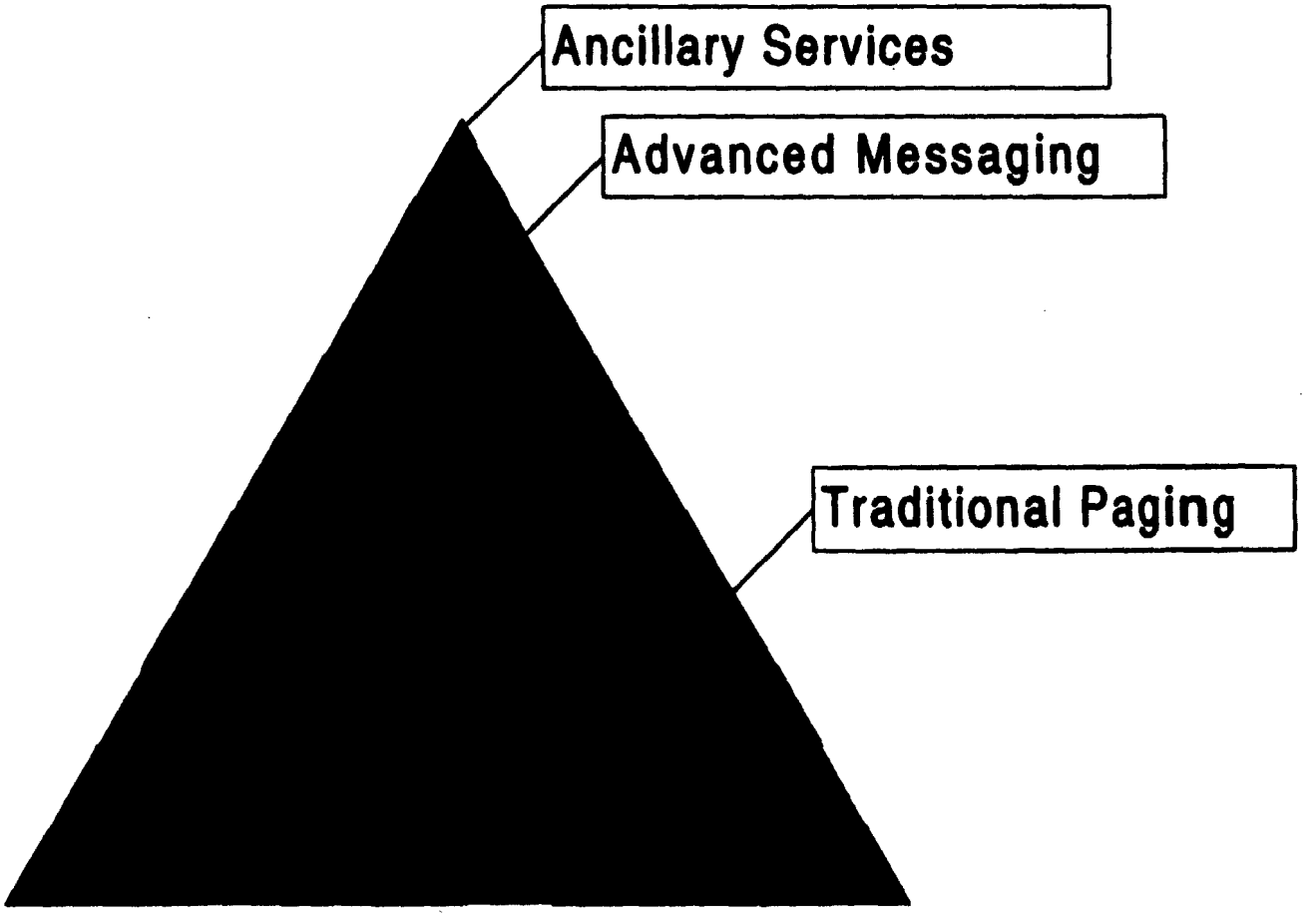
# Communications Assistance to Law Enforcement Act

# CALEA

# Industry Characteristics

- Diverse Size of Carriers
  - < 500 to > 10 Million Subscrib
- Diverse Types of Equipment
  - Carrier Built to Redundant Glenayre
- Diverse Service Offerings
  - Traditional Paging to One Number S
- Diverse System Topology
  - 1 Switch for US to 1 Switch per Market

# Diversity of Services in The Paging Industry



# CALEA - Status

- Safe Harbor Standards in Place
  - Traditional Standard 04 May 1998
  - Advanced Messaging 25 August ~~1998~~ 1998
  - Ancillary Services 19 February 1999

# CALEA - Traditional Paging

- Clone Pagers
- Law Enforcement Owned Monitoring Devices

# CALEA - Advanced Messaging Interface (AMI)

- Computer industry standard TCP/IP protocol
- Delivery protocol is HTTP v1.1 POST with concatenated vCards for call identifying information
- MIME attachment containing call content including Vice files for InFLEXion™

# CALEA - Ancillary Services

- AMI protocol for call identifying information
- Audio paths as required for call content

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# CALEA Suite of Standards

## for

## Traditional Paging

## Advanced Messaging, and

## Ancillary Services

Version 1.2

PCIA Technical Committee

CALEA Subcommittee

19 February, 1999

**Chairs:**

| | |
|---|---|
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| Regulatory Working Group: | David I. Odom, DOdom@conxus.com (CONXUS Communications, Inc.) |
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# Foreword

In this suite of documents, the Personal Communications Industry Association (PCIA) Technical Committee defines the specifications for interface compatibility requirements between paging service providers (PSPs) and law enforcement agencies (LEAs).

The Communications Assistance for Law Enforcement Act (CALEA)[1] was enacted on October 25, 1994. CALEA requires telecommunications carriers to ensure that their equipment, facilities, or services have the capability to:

(1) "expeditiously ... isolate and enable the government to intercept all communications in the carrier's control to or from the equipment facilities or services of a subscribe[r], concurrently with the communications' transmission, or at any later time acceptable to the government;"

(2) "expeditiously ... isolate and enable the government to access reasonably available call identifying information about the origin and destination of communications;"

(3) "make intercepted communications and call identifying information available to government in a format available to the carrier so they may be transmitted over lines or facilities leased or procured by law enforcement to a location away from the carrier's premises;" and

(4) "meet these requirements with a minimum of interference with the subscriber's services and in such a way that protects the privacy of communications and call identifying information that are not targeted buy [sic] electronic surveillance orders, and that maintains the confidentiality of the government's wiretaps."[2]

Under CALEA, industry associations and standards-setting bodies are authorized to adopt standards for satisfying these assistance capability requirements. Telecommunications carriers, manufacturers, and/or support service providers that comply with these standards have "safe harbor" and are deemed in compliance with CALEA's capability requirements:

> "a telecommunications carrier shall be found to be in compliance with the assistance capability requirements under section 103, and a manufacturer of telecommunications transmission or switching equipment or a provider of telecommunications support services shall be found in compliance with section 106, if the carrier, manufacturer, or support service provider is in compliance with publicly available technical requirements or standards adopted by an industry association or standard-setting organization. ..."[3]

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1 Communications Assistance for Law Enforcement Act, Pub. L. No 103-414 (CALEA).

2 Telecommunications Carrier Assistance to the Government, H. Rep. No. 103-827, at 22 (October 4, 1994).

3 CALEA, § 107.

In November 1997, an Interim Standard (J-STD-025) for wireline and wireless telephony[4] was adopted by the Telecommunications Industry Association Subcommittee TR45.2 and Committee T1 of the Alliance for Telecommunications Industry Solutions. Shortly thereafter, in December 1997, a working group was established under the auspices of PCIA to determine whether J-STD-025 was readily applicable to paging technology and, if not, to develop a separate standard for the paging industry. After carefully reviewing J-STD-025, the working group determined that J-STD-025's telephony specifications were predicated on a telephony switch of much greater complexity and capability than the limited telephony switches available to PSPs and, as such, was not readily applicable to paging technology and that a separate standard was necessary.

In order to expedite the standards-setting process, the Paging Technical Committee decided to develop a Suite of Standards and release this Suite of Standards in three parts: 1) Traditional Paging[5], 2) Advanced Messaging[6], and 3) Ancillary Services[7]. Based on market data available[8] during the development of these Standards, the committee elected to prioritize the development in the order given above. The Traditional Paging Standard defines compliance for one-way paging services with fixed geographic coverage areas. The Advanced Messaging Standard defines compliance for subscriber defined on-demand roaming, forwarding and redirection, two-way and acknowledged voice paging, and real-time wireless packet data services. The Ancillary Services Standard defines compliance for caller/subscriber bridging, outdial, and one-number services. Any PSP, manufacturer, or service provider that complies with these Standards will have "safe harbor" under section 107 of CALEA and will be found in compliance with CALEA's assistance capability requirements.

Standards can not be developed in the absence of capacity considerations. In order to prepare these Standards, the committee had to develop a working set of capacity assumptions. These assumptions are defined in the annex to this Suite. This annex is informative only and is not a part of this standard.

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4 Lawfully Authorized Electronic Surveillance, TIA/ATIS, Interim/Trial Use Standard (J-STD-025)

5 Standard 1, CALEA Specification for Traditional Paging, v1.0

6 Standard 2, CALEA Specification for Advanced Messaging, v1.0

7 Standard 3, CALEA Specification for Ancillary Services, v1.0

8 Based on list of top 29 Paging Carriers published by RCR on October 27, 1997.

# Document Change Record

| | | |
|---|---|---|
| **v1.0** | 04 May, 1998 | First release of document. |
| **v1.1** | Not released | |
| **v1.2** | 19 February, 1999 | Aligned Ancillary Services definitions in Foreword and Section 1 with Ancillary Services Standard 3.<br>Added Market Share prioritization note in last paragraph of Foreword.<br>Added Capacity annex and reference in Foreword.<br>Inserted missing Advanced Messaging and Ancillary Services definitions in Glossary.<br>Fixed miscellaneous formatting issues and email addresses. |

# Table of Contents



# Table of Standards



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None

# Introduction

In this suite of documents, the PCIA Technical Committee defines the specifications for interface compatibility requirements between PSPs and LEAs.

In November 1997, an Interim Standard (J-STD-025) for wireline and wireless telephony was adopted by the Telecommunications Industry Association Subcommittee TR45.2 and Committee T1 of the Alliance for Telecommunications Industry Solutions. Shortly thereafter, in December 1997, a working group was established under the auspices of PCIA to determine whether J-STD-025 was readily applicable to paging technology and, if not, to develop a separate standard for the paging industry. After carefully reviewing J-STD-025, the working group determined that J-STD-025's telephony specifications were predicated on a telephony switch of much greater complexity and capability than the limited telephony switches available to PSPs and, as such, was not readily applicable to paging technology and that a separate standard was necessary.

In order to expedite the standards-setting process, the Paging Technical Committee decided to develop a Suite of Standards and release this Suite of Standards in three parts: 1) Traditional Paging, 2) Advanced Messaging, and 3) Ancillary Services. Any PSP, manufacturer, or service provider that complies with these Standards will have "safe harbor" under section 107 of CALEA and will be found in compliance with CALEA's assistance capability requirements.

In some instances, the paging services to which certain intercept subjects subscribe may permit a PSP to access and deliver communications and reasonably available call-identifying information without the PSP having to modify its networks or systems. In these instances, the PSP may be fully compliant with the assistance capability requirements set forth in CALEA. For example, an LEA could effect a central office- or local loop-based interception using conventional methods of access and delivery without the involvement of the PSP. Another example is the PSP could assist the LEA in setting up a clone or duplicate of the subject's receiving device so that the LEA could monitor the subject's call content through the radio channel transmissions.

## Purpose

In this suite of documents, the PCIA Technical Committee defines the specifications for interface compatibility requirements between PSPs and LEAs.

Any PSP, manufacturer, or service provider that complies with this Suite of Standards will have "safe harbor" under section 107 of CALEA and will be found in compliance with CALEA's assistance capability requirements.

## Scope

The scope of this Suite of Standards is to define the services to support LAES and the interface between a PSP and an LEA.

## How This Suite of Standards Document is Organized

This Suite of Standards is organized around the three separate areas of Paging-related communications: 1) Traditional Paging, 2) Advanced Messaging, and 3) Ancillary Services. The sections addressing each of these are:

**Foreword** provides an overview of this Suite of Standards.

**Document Change Record** provides revision control for this Suite of Standards.

**Introduction** defines the purpose, scope, and organization of this Suite of Standards.

**References** defines a list of the references used in the preparation of this Suite of Standards.

**Glossary** defines the words, acronyms, and initialisms that are used in this Suite of Standards.

**Annex 1 Capacity** defines the committee-developed working set of capacity assumptions.

**Standard 1 CALEA Specification for Traditional Paging** defines the Traditional Paging LAES services, network entities, and information flows to implement Traditional Paging LAES services.

**Standard 2 CALEA Specification for Advanced Messaging** defines the Advanced Paging and Packet Data LAES services, network entities, and information flows to implement Advanced Messaging LAES services.

**Standard 3 CALEA Specification for Ancillary Services** defines the Ancillary Services LAES services, network entities, and information flows to implement Ancillary Services LAES services.

# References

CALEA Standard for Traditional Paging, v1.0, 04 May, 1998 (http://www.pcia.com/calea_specs_v1p1.zip)

CALEA Standard for Advanced Messaging, v1.0, 25 August, 1998 (http://www.pcia.com/calea_specs_v1p1.zip)

CALEA Standard for Ancillary Services, v1.0, 11 February, 1999 (http://www.pcia.com/calea_specs_v1p1.zip)

Communications Assistance for Law Enforcement Act, Pub. L. No. 103-414

Telecommunications Carrier Assistance to the Government, H. Rep. No. 103-827

Lawfully Authorized Electronic Surveillance, TIA/ATIS, Interim/Trial Use Standard (J-STD-025)

# Glossary

**Note:** Definitions may vary in each of the referenced PCIA CALEA Standards documents.

**Advanced Messaging**
Advanced Messaging services include such services as subscriber defined on-demand roaming, forwarding and redirection, two-way and acknowledged voice paging, and wireless packet data services.

**Ancillary Services**
Ancillary Services include caller/subscriber bridging, outdial, and one-number services.

**CALEA**
Communications Assistance for Law Enforcement Act.

**call content**
see *content*.

**call-identifying information**
is defined in CALEA Section 102 (2) to be "dialing or signaling information that identifies the origin, direction, destination, or termination of each communication generated or received by a subscriber by means of any equipment, facility, or service of a [PSP]."

**clone radio receiving device**
a radio receiving device, provided by the LEA, that is pre-programmed by the PSP as authorized by a lawful authorization with the intercept subject's radio receiving address and set to monitor the subject's radio receiving frequency with the express purpose of decoding and capturing the subject's call content when used within the subject's fixed geographical broadcast area. A clone radio receiving device has the same characteristics and call content reception and processing features as the intercept subject's radio receiving device.

**Commission**
defined in CALEA Section 102 (3) to be "the Federal Communications Commission".

**communication**
in this Standard, communication refers to any wire or electronic communication, as defined in 18 USC 2510.

**content**
is defined in 18 USC 2510 (8) to be "when used with respect to any wire or electronic communications, includes any information concerning the substance, purport, or meaning of that communication."

**electronic surveillance**
the statutory-based legal authorization, process, and associated technical capabilities and activities of LEAs related to the interception of wire, oral, or electronic communications while in transmission.

**government**
defined in CALEA Section 102 (5) to be "the government of the United States and any agency or instrumentality thereof, the District of Columbia, any commonwealth, territory, or possession of the United States, and any State or political subdivision thereof authorized by law to conduct electronic surveillance."

**intercept**
defined in 18 USC 2510 (4) to be "the aural or other acquisition of the content of any wire, electronic, or oral communication through the use of any electronic, mechanical, or other device."

**LAES**
Lawfully Authorized Electronic Surveillance

**Law Enforcement Agency**
a government entity with the legal authority to conduct electronic surveillance.

**Lawful Authorization**
no intercepts shall take place without specific lawful authorization. One Lawful Authorization may encompass multiple devices and/or multiple geographic locations.

**LEA**
see *Law Enforcement Agency*.

**paging service provider**[9]
defined from CALEA Section 102 (8) to be, "a person or entity engaged in the transmission or switching of wire or electronic communications as a common carrier for hire, and includes 1) a person or entity engaged in providing commercial mobile service, or 2) a person or entity engaged in providing wire or electronic communications switching or transmission service to the extent that the Commission finds such service is a replacement for a substantial portion of local telephone exchange service and that it is in the public interest to deem such a person or entity to be a [PSP] for purposes of this title. This does not include 1) persons or entities insofar as they are engaged in providing information services, and 2) any class or category of [PSPs] that the Commission exempts by rule after consultation with the U. S. Attorney General."

**PSP**
see *Paging service provider*.

**Traditional Paging**
traditional paging supports the one-way wireless transmission of tone-only, numeric, alphanumeric, and voice messages from a PSP to one or more radio receiving devices within a stipulated, predefined geographic radio coverage area of the PSP's infrastructure.

**transmission**
the act of transferring communications from one location or another by wire, radio, electromagnetic, photoelectronic, or photo-optical system.

**USC**
United States Code.

**wire communications**
defined in 18, USC 2510 (1) to be "any aural transfer made in whole or in part through the use of facilities for the transmission of communications by the aid of wire, cable, or other like connection between the point of origin and the point of reception (including the use of such connection in a switching station) furnished or operated by any person engaged in providing or operating such facilities for the transmission of interstate or foreign communications or communications affecting interstate or foreign commerce and such term includes any electronic storage of such communication."

[9] This Suite of Standards uses the term *paging service provider* instead of the CALEA term *telecommunication carrier*.

# Annex 1 Capacity

Capacity requirements and definitions are fundamental to the design and development of specifications, standards, and the equipment needed to implement and support those specifications and standards. The following considerations, pivotal to the design process, are examples of the types of decisions that are affected by the choice of capacity requirements and definitions:

- To implement these standards in hardware and software internal to existing architecture or to add external equipment and devices,
- To use analog or digital interface methods,
- To buffer data on disk or in RAM, and
- To use an existing processor or upgrade to a processor capable of much higher computing power.

Since no official capacity notice was available and in order to move forward in developing these standards, PCIA had to make certain assumptions about capacity requirements and definitions. These assumptions are described below and are not a part of this standard.

PCIA bases the offered capacity assumptions on many years of industry experience working with LEAs as well as actual historical numbers published in the annual report[1] by the Administrative Office of the U.S. Courts. However, in the event that the formal capacity requirements and definitions are significantly different from those offered below, substantial modifications to the specifications and standards will be required and design and development work in process on the equipment needed to implement and support those specifications and standards may be lost.

The CALEA Suite of Standards for Traditional Paging, Advanced Messaging, and Ancillary Services is built upon the following historical PSP demographics and recommendation for capacity requirements.

## A1. Historical PSP Demographics

Unlike cellular and broadband PCS, traditional paging licenses were not based on geopolitical boundaries. These systems are a group of licenses for individual transmitters, operated together to serve a perceived community of interest. Currently, geopolitical areas of any kind have little meaning to 95% of the PSPs. Within a specified geographic area, the number of PSPs may range from one to several hundred. In fact, high concentrations of population tend to mean many opportunities for sales of pagers and translate to multiple PSPs with large numbers of subscribers and/or a large number of PSPs to serve the population. Traditional paging is a very competitive business that tends to spawn PSPs.

[1] Annual Report of the Director of the Administrative Office of the United States Courts on Applications for Orders Authorizing or Approving the Interception of Wire, Oral, or Electronic Communications: January 1 through December 31, 1997 (released April, 1998)

Since PSPs cover a broad range of geography (from local communities to nationwide), services (from traditional paging to ancillary), and quantities of subscribers (from a few hundred to millions), the most meaningful expression of capacity would be one that specified a percentage of the total subscribers on a given service (e.g., traditional paging, advanced messaging) within a given PSP that must be available for simultaneous surveillance. Such a simple expression of capacity would automatically scale for any size PSP and any geographical area. It would also cause the PSP's technical capability electronic surveillance to grow and the LEA's capabilities to scale to accommodate differences in the shear number of PSPs and subscribers as the number of subscribers for a specific service grows over time. If capacity were expressed as a percentage of subscribers on a service within a PSP, an increase in subscriber concentrations on that service would automatically translate into the need to expand the PSP's and LEA's intercept capabilities.

# A2. Recommendation for Capacity Requirements

PCIA recommends a capacity requirement be promulgated based on a single percentage of subscribers on each service that is offered by a PSP. This percentage should be based in part on the number of lawful authorizations for paging interception in the United States in a given year (as identified in the A.O. annual report) divided by the total number of subscribers in the United States for that same year. For example, in 1997 there were approximately 289 pager-related wiretaps reported and approximately 40,000,000 pager subscribers or a percentage of .0007225%. For simplicity, this percentage will be rounded to 0.001%.

We realize that the A.O. Report's statistics are of the annual number of wiretaps, not the number of simultaneous wiretaps. Using these numbers, therefore, overstates the number of simultaneous wiretaps by approximately an order of magnitude. However, this approximate order of magnitude difference should more than compensate for such factors as:

- lawful authorizations are not spread evenly across the country and
- the number of wiretaps as a percentage of subscribers may increase over time.

For new or underutilized services (e.g., Ancillary Services) for which no specific numbers are available from the A.O. Report, PCIA would propose a capacity requirement of one (1) simultaneous intercept, until such time as specific numbers are available that demonstrate the need for a higher capacity. This assumption should not underestimate law enforcement's requirements but, in fact, should more than satisfy law enforcement's needs. For example, even the largest PSP systems today have fewer than 10,000 subscribers with ancillary services.

Given the percentage of 0.001% and a particular PSP offering five services consisting of:

- Traditional Paging with 1,250,000 subscribers,
- Advanced Messaging two-way data service with 180,000 subscribers,
- Advanced Messaging acknowledged voice with 80,000 subscribers,
- Ancillary Services outdial with 600 subscribers, and
- Ancillary Services caller/subscriber bridging with 900 subscribers,

the PSP would be required to provide the capacity to simultaneously monitor:

- 13 Traditional Paging Intercepts
  [1,250,000 traditional paging subscribers x 0.001% = 12.5],
- 3 Advanced Messaging Intercepts
  [((180,000 two-way data subscribers x 0.001%) + (80,000 two-way voice subscribers x 0.001%)) = (1.8 + 0.8) = 2.6], and
- 1 Ancillary Services Intercepts
  [((600 outdial subscribers x 0.001%) + (900 caller/subscriber bridging subscribers x 0.001%)) = (0.006 + 0.009) = 0.015]

With capacity specified in this way, the geographic service area is immaterial. The result is the same if the service area is the United States or if it is a small part of metropolitan area. This implementation of surveillance capacity is flexible and can adjust to the system design and service offerings of each PSP.

# A3. Advantages

There are several advantages to these capacity assumptions.

1) If a shift from Traditional Paging to some form of Advanced Messaging were to occur, the capacity requirements would scale according to the number of subscribers on that service at any point in time.
2) As new services are introduced, surveillance capacities will be established in proportion to their rate of adoption with minimal additional work by authorities.
3) The capacity requirements are simple and easily understood by all members of the PSP and LEA communities.
4) It accommodates all types of PSPs with all kinds of services and all sizes of service areas.

# References

CALEA Suite of Standards for Traditional Paging, Advanced Messaging, and Ancillary Services, v1.1, 11 February, 1999 (http://www.pcia.com/calea_specs_v1p1.zip)

CALEA Standard for Traditional Paging, v1.0, 04 May, 1998 (http://www.pcia.com/calea_specs_v1p1.zip)

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Annual Report of the Director of the Administrative Office of the United States Courts on Applications for Orders Authorizing or Approving the Interception of Wire, Oral, or Electronic Communications: January 1 through December 31, 1997 (released April, 1998), (http://www.uscourts.gov/wiretap/contents.html)